

What Is Claimed Is:

1. An apparatus for providing auxiliary cooling
and thermal stability to a temperature sensitive
5 opto-electronic component, said apparatus comprising:

a primary thermal control system having a first
thermal connection being thermally connected with a
primary structure supporting at least one component of
an optical system and a second thermal connection being
10 thermally connected with an external environment; and

an auxiliary thermal control system having a first
thermal connection being thermally connected with said
temperature sensitive opto-electronic component, and
said auxiliary thermal control system having a second
15 thermal connection being thermally connected with said
primary thermal control system whereby said auxiliary
thermal control system provides cooling to said
temperature sensitive opto-electronic component and
said primary thermal control system provides additional
20 cooling to said auxiliary thermal control system
through temperature regulation of said primary
structure.

2. Apparatus according to claim 1 further comprising an auxiliary structure configured to thermally isolate said temperature sensitive opto-electronic component from each of said primary thermal control system and said primary structure in thermal connection with said primary thermal control system.

3. Apparatus according to claim 1 wherein said first thermal connection between said auxiliary thermal control system and said temperature sensitive opto-electronic component is structurally compliant wherein said compliant thermal connection compensates for thermal expansion or contraction without effecting an optical alignment of said temperature sensitive opto-electronic component relative to said primary structure.

4. Apparatus according to claim 3 wherein said compliant thermal connection comprises a thermally conductive flexure.

5. Apparatus according to claim 3 wherein said compliant thermal connection comprises a set of

thermally connected, structurally independent
intermeshed fins.

5 6. Apparatus according to claim 3 wherein said
compliant thermal connection comprises a thermally
conductive plate having structural flexibility means.

10 7. Apparatus according to claim 6 wherein said
structural flexibility means comprise a corrugated
plate.

15 8. Apparatus according to claim 3 wherein said
compliant thermal connection comprises at least one
flexible and thermally conductive strand.

20 9. Apparatus according to claim 1 wherein said
primary structure supporting said at least one
temperature sensitive component of an optical system
comprises an optical platform.

10. Apparatus according to claim 1 wherein said
auxiliary thermal control system comprises a
thermo-electric device.

11. Apparatus according to claim 10 wherein said auxiliary thermal control system further comprises a temperature sensor.

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12. Apparatus according to claim 11 wherein said temperature sensor of said auxiliary thermal control system has a strong thermal connection with said temperature sensitive opto-electronic component.

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13. Apparatus according to claim 12 wherein said temperature sensor of said auxiliary thermal control system comprises a direct structural connection to said opto-electronic component.

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14. Apparatus according to claim 1 wherein said primary thermal control system comprises a temperature sensitive thermo-electric device.

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15. Apparatus according to claim 10 wherein said primary thermal control system further comprises a temperature sensor.

16. Apparatus according to claim 15 wherein said temperature sensor of said auxiliary thermal control system comprises a thermal connection with said primary structure supporting said at least one component of an optical system.

17. Apparatus according to claim 16 wherein said primary structure supporting said at least one component of an optical system comprises an optical platform.

18. Apparatus according to claim 15 wherein said temperature sensor of said primary thermal control system comprises a thermal connection with one of said at least one component supported by said primary structure.

19. Apparatus according to claim 1 wherein said auxiliary thermal control system further comprises a temperature sensor.

20. Apparatus according to claim 19 wherein said temperature sensor of said auxiliary thermal control system comprises a thermal connection with a thermo-electric device of said auxiliary thermal control system.

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21. Apparatus according to claim 1 wherein said temperature sensitive opto-electronic component is alignment sensitive.

22. Apparatus according to claim 21 wherein said alignment sensitive opto-electronic component is aligned with one of said at least one component of said optical system.

23. Apparatus according to claim 3 wherein said opto-electronic component is aligned with one of said at least one component of said optical system.

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